

U.S.S.N. 10/658,709

Claim Amendments

Please amend claims 1, 2, 9, 17, and 20 as follows:

Please cancel claim 13 and 21 as follows:

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Listing of Claims

1. (currently amended) A primer tank for generating a primer vapor for treating a substrate with reduced primer droplet formation and improved deposition uniformity of said primer vapor on said substrate comprising:

a tank body for containing a liquid primer to form a planar exposed surface of said liquid primer, said planar exposed surface comprising a liquid vapor interface; and,

a nozzle assembly comprising a nozzle plate, said nozzle plate comprising a plurality of openings arranged in a planar dispersed pattern, said planar dispersed pattern comprising radially extending rows of said plurality of openings, said plurality of openings disposed above said planar exposed surface and arranged to direct a plurality of gas streams from said planar dispersed pattern onto said planar exposed surface to form said primer vapor in a vapor collection space above said liquid vapor interface.

2. (currently amended) The primer tank of claim 1 wherein said nozzle assembly further comprises[[:]]

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a gas inlet pipe adapted to receive a primary gas stream and said nozzle plate provided in downstream fluid communication with said gas inlet pipe[[:]]

~~wherein said planar disperse pattern comprises said plurality of openings disposed in a plurality of radially extending rows on a plate surface of said nozzle plate.~~

3. (previously presented) The primer tank of claim 1 further comprising a level sensor provided in said tank body adapted to sense a level of the liquid primer in said tank body.

4. (canceled)

5. (previously presented) The primer tank of claim 1 further comprising a vapor outlet adapted to distribute the primer vapor from said vapor collection space to a downstream process.

Claims 6-8 (canceled)

9. (currently amended) A primer tank for generating a primer vapor for treating a substrate with improved deposition uniformity of said primer vapor on said substrate, comprising:

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a tank body for containing a liquid primer to form a planar exposed surface of said liquid primer; and,

a nozzle assembly provided in said tank body, said nozzle assembly having a gas inlet pipe for receiving a primary gas stream;

a housing having a housing interior provided in fluid communication with said gas inlet pipe; and

a nozzle plate in downstream fluid communication with said housing, said nozzle plate having a plurality of openings comprising a planar dispersed pattern, said planar dispersed pattern comprising radially extending rows of said plurality of openings, said planar dispersed pattern adapted to receive the primary gas stream and eject a plurality of secondary gas streams onto said planar exposed surface to create a primer vapor in a vapor collection space above said exposed surface.

10. (previously presented) The primer tank of claim 9 further comprising a level sensor provided in said tank body adapted to sense a level of the liquid primer in said tank body.

11. (previously presented) The primer tank of claim 9 further

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comprising a vapor outlet tube provided in fluid communication with said tank body adapted to distribute the primer vapor from said tank body.

Claims 12-16 (canceled)

17. (currently amended) A method of generating a primer vapor from a liquid primer for treating a substrate to reduce primer vapor droplet formation and improved deposition uniformity of said primer vapor on said substrate comprising the steps of:

providing a primer tank having a tank body;

providing the liquid primer in said tank body to form a planar exposed surface of said liquid primer, said exposed surface comprising a liquid vapor interface;

directing an inert gas comprising a plurality of gas streams from a plurality of openings, said plurality of openings comprising a planar dispersed pattern formed in a plate surface of a nozzle plate, said planar dispersed pattern comprising radially extending rows of said plurality of openings, said plurality of gas streams directed onto said planar exposed surface to form a vapor above said liquid vapor interface, said

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vapor comprising said liquid primer and said inert gas; and,

transferring said vapor to a downstream process to deposit said vapor on said substrate.

18. (original) The method of claim 17 wherein said liquid primer comprises hexamethyldisilazone.

19. (previously presented) The method of claim 17 wherein said plurality of gas streams are directed onto said planar exposed surface at subatmospheric pressures.

20. (currently amended) The method of claim 17 wherein the step of directing comprises:

providing a primary gas stream;

dividing said primary gas stream into said plurality of gas streams according to said plurality of openings, ~~said plurality of openings disposed in a plurality of radially extending rows on a plate surface of said nozzle plate to form said planar dispersed pattern,~~ said planar dispersed pattern disposed above said planar exposed surface; and,

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directing said plurality of gas streams against said planar exposed surface and collecting said vapor in a vapor collection space disposed above the vapor liquid interface.

21. (canceled)

22. (previously presented) The method of claim 17, wherein said inert gas comprises nitrogen.

23. (previously presented) The method of claim 17, wherein said downstream process comprises treating a semiconductor process wafer with the primer vapor, wherein said downstream process is maintained at a relatively lower pressure than the vapor collection space.

24. (previously presented) The primer tank of claim 5, wherein said downstream process is maintained at a lower pressure relative to said vapor collection space.

25. (canceled)